Absolute Maximum and Minimum Temperature Extreme-Value Distributions vs. Circulation Regimes over Nordic Countries

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Abstract

Based on long, homogenized North Atlantic Climate Dataset (NACD) monthly data series (1890–1995) the extreme-value distributions and return period values of January minimum and July maximum temperatures of the Fennoscandian region and Torshavn, Faroe Islands are determined.

The extreme value distributions of both January absolute minimum and July absolute maximum temperature followd in all but one case the Weibull (type III) distribtion. Only in Torshavn the extreme value distribution of July aboslute maximum temperature followed the Gumbel (Type I) distribution.

The atmospheric circulation patterns corresponding to the most extreme temperature values are considered. In this context the role of the continental and maritime effects are discussed. In July absolute maximum temperature series of Torshavn a special attention is paid to the characteristics of the maritime environment.

The question of which circulation regimes could be associated with Nordic extreme-value distribution regions (Brown and Katz, 1995) under consideration will be explored. Some interesting differences in the stability of the results for finland and for the more western Scandinavian countries are found.

List of key references:

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